What is claimed is:

1. A high-pressure discharge lamp, comprising:

a discharge chamber that is formed in a silica glass tube;

a pair of electrodes each having one end that confronts one end of the other electrode in said discharge chamber;

metal foil parts that each are superposed and connected to the other ends of said electrodes; the end of each metal foil part on the side of said electrode being formed as a tapered portion, and moreover, the tip of each said tapered portion on the side of the electrode being, with respect to its direction of width, within the width in the radial direction of said electrode;

sealing sections for forming a hermetic seal of said discharge chamber, these sealing sections being parts for embedding said other ends of said electrodes and said metal foil parts in glass at the two ends of said silica glass tube in a state such that the vicinity of each junction of said electrodes and said metal foil parts is wrapped in a metal coil.

2. A high-pressure discharge lamp according to claim 1, wherein mercury, halogen gas, and an inert gas are sealed in said discharge chamber.

3. A high-pressure discharge lamp according to claim 2, wherein said metal coils are wrapped cover end portions of said electrodes on the side of said metal foil parts.

4. A high-pressure discharge lamp according to claim 2, wherein width Wc of the tips of the tapered portions of said metal foil parts on the side of said electrodes is prescribed to a dimension that satisfies:

$$Wc \leqq D$$

where D is the diameter of said electrodes.

5. A high-pressure discharge lamp according to claim 4, wherein width Wc of the tips of the tapered portions of said metal foil parts on the side of said electrodes is prescribed to be a dimension that satisfies:

$$Wc \leqq 0.8\ D$$

where D is the diameter of said electrodes.

6. A high-pressure discharge lamp according to claim 2, wherein coil diameter d of said metal coils is prescribed to be a dimension that satisfies:

$$D/8 \leqq d \leqq D/2$$

where D is the diameter of said electrodes.

7. A high-pressure discharge lamp according to

claim 2, wherein coil length L1 of said metal coils is prescribed to be a dimension that satisfies:

$$L1 \geqq 2D$$

where D is the diameter of said electrodes.

8. A high-pressure discharge lamp according to claim 2, wherein cut length L2 of the tapered portions of said metal foil parts is prescribed to be a dimension that satisfies:

$$W \leqq L2 \leqq 3W$$

where W is the width of said metal foil parts.

9. A high-pressure discharge lamp according to claim 2, wherein:

said mercury is injected to at least 0.12 mg/mm^3;

at least one of chlorine, bromine, and iodine is injected as said halogen gas such that the halogen gas partial pressure in said discharge chamber is within the range $1 \times 10^{-8} - 1 \times 10^{-6}$ $\mu mol/mm^3$; and moreover,

the residual oxygen partial pressure in said discharge chamber is equal to or less than 2.5×10^{-3} Pa.

10. A high-pressure discharge lamp according to claim 9, wherein, of the portion of said electrodes that is embedded in glass, an airtight contact is not established between electrode surfaces on which said metal

coils are not wrapped and glass surrounding these electrode surfaces.

11. A method of fabricating a high-pressure discharge lamp,

said high-pressure discharge lamp comprising a discharge chamber that is formed in a silica glass tube; a pair of electrodes each having one end that confronts one end of the other electrode in said discharge chamber; metal foil parts that each overlie and connect to the other ends of said electrodes; metal coils that are wrapped in the vicinities of the junctions of said electrodes and said metal foil parts; sealing sections for forming a hermetic seal of said discharge chamber, these sealing sections being parts for embedding said other ends of said electrodes, said metal coils, and said metal foil parts in glass at the two ends of said silica glass tube; wherein the ends of said metal foil parts on the electrode side are formed as tapered portions; the tips of said tapered portions on the electrode side are, with respect to the direction of width of the tapered portions, within the width in the radial direction of said electrodes; and mercury, halogen gas, and an inert gas are injected in said discharge chamber;

said method comprising:

a bulb formation step for using a silica glass

tube to form a bulb having a swelled portion for said discharge chamber;

an electrode assembly fabrication step for fabricating electrode assemblies by: inserting a metal coil on each of said electrodes, superposing the end of said electrode and the tapered portion of said metal foil part, and then, either before or after shifting and securing said metal coil to a position that covers the superposed portion, connecting said electrode and said metal foil part by crimping or welding;

a first electrode incorporation step for inserting one of said electrode assemblies into the opening of one end of said silica glass tube;

a first sealing step for heating one end of said silica glass tube to embed the other end of said electrode, said metal coil, and said metal foil part in the glass of this end and thus establish a hermetic seal of said discharge chamber;

a mercury introduction step for introducing said mercury into said discharge chamber from the opening at the other end of said silica glass tube;

a second electrode assembly incorporation step for inserting the another of said electrode assemblies into the opening at the other end of said silica glass tube;

an evacuation step for evacuating air inside said discharge chamber from the opening of the other end of

said silica glass tube;

an inert gas introduction step for introducing said inert gas into said discharge chamber from the opening of the other end of said silica glass tube;

a halogen gas introduction step for introducing said halogen gas into said discharge chamber from the opening at the other end of said silica glass tube; and

a second sealing step for heating the other end of said silica glass tube to embed the other end of said electrode, said metal coil, and said metal foil part in the glass of this other end and thus hermetically seal said discharge chamber.

12. A method of fabricating a high-pressure discharge lamp according to claim 11, wherein:

in said evacuation step, air is evacuated such that the partial pressure of residual oxygen in said discharge chamber is less than or equal to 2.5×10^{-3} Pa;

in said mercury introduction step, mercury is introduced such that the amount of mercury that is injected is at least 0.12 mg/mm^3 with respect to the spatial volume in said discharge chamber; and

in said halogen gas introduction step, halogen gas is introduced such that the partial pressure of said halogen gas in said discharge chamber is within the range from 1×10^{-8} to 1×10^{-6} $\mu mol/mm^3$.